



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,343	09/18/2000	Sumi Tanaka	197310US2PCT	8744
22850	7590	08/29/2003		14
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER	
			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/646,343	TANAKA ET AL.	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 June 2003.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1-15 is/are allowed.
- 6) Claim(s) 16 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ .                                   |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,304,248 to Cheng et al. in view of U.S. Patent No. 5,383,971 to Hayakawa et al. and in view of U.S. Patent No. 5,635,244 to Mayeda et al.

4. Cheng et al. disclose a film deposition apparatus in Figure 5 substantially as claimed and comprising: a container (2) forming a process chamber for processing a target object (10); a mounting table (40) which is provided in the processing chamber and on which the target object is mounted; a first gas supply provided in the container, for supplying processing gas into the processing chamber, the processing gas forming a thin film in the target object mounted on the mounting table (20), a movable clamp (50) for clamping an edge portion of the target object and holding the target object on the mounting table; a first gas flow path (upwards arrows) formed between the mounting table and a support (70/76) provided for the clamp means; a second gas flow path (gas flows through gap and back down other side of support) formed between the clamp and the support when the clamp is moved to a position where the

Art Unit: 1763

clamp clamps the target object; and a second gas supply section (16) for causing backside gas to flow into the first and second gas flow paths.

5. However, Cheng et al. fail to specifically disclose the heating means of the apparatus.
6. Hayakawa et al. disclose a film deposition apparatus in Figure 2, comprising: a second heating apparatus (17b) formed in a support structure for the clamp (16a) and arranged opposite the clamp, for heating the clamp for the purpose of maintaining the substrate (8) and the vicinity thereof at a constant temperature (abstract). Hayakawa et al. further disclose a heater/first heating apparatus (14) located in the substrate holder for the purpose of heating and maintaining the whole of the interior of the chamber at a predetermined temperature (column 3, rows 15-19).
7. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have provided a first heating apparatus located in the substrate support in Cheng et al. in order to heat and maintain the whole of the interior of the chamber at a predetermined temperature as taught by Hayakawa et al. and to have provided a second heating apparatus in a support structure for the clamp in Cheng et al. in order to maintain the substrate and the vicinity thereof at a constant temperature as taught by Hayakawa et al.
8. Cheng et al. and Hayakawa et al. disclose the invention substantially as claimed and as described above.
9. However, Cheng et al. and Hayakawa et al. fail to teach an inner peripheral tapered surface of the clamp holding the target object on the mounting table.
10. Mayeda et al. teach the use of a clamp (illustrated in Figure 3C) configured with a inner an peripheral tapered surface (48) for holding a target object (18) on a mounting table for the purpose of minimizing the aspect ration of the gap under an overhang member and reducing the amount of wafer area required for clamping and thereby increasing the amount of area available for fabrication (column 5, rows 34-54).
11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a clamp with an inner peripheral tapered surface in Cheng et al. and Mayeda et al. in order to minimize the aspect ration of the gap under an overhang member and reduce the amount

Art Unit: 1763

of wafer area required for clamping and thereby increasing the amount of area available for fabrication as taught by Mayeda et al.

***Allowable Subject Matter***

12. Claims 1-15 are allowed.
13. The following is an examiner's statement of reasons for allowance: Cheng and Hayakawa are the closest pieces of prior art. However, neither reference teaches or fairly suggest the apparatus as claimed and comprising a first gas flow path **defined by the mounting table and the second heating apparatus.** Additionally, no other piece of prior art provides motivation for combining the feature with Cheng and Hayakawa.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

14. Applicant's arguments, see Paper No. 12, filed 06/13/03, with respect to claims 1-15 have been fully considered and are persuasive. The rejection of these claims has been withdrawn. Applicant has amended the claim language to specify that the first gas flow path is defined by the mounting table and the second heating apparatus. Examiner agrees that Cheng does not teach this limitation.
15. Applicant's arguments, see Paper No. 12, filed 06/13/03, with respect to the rejection(s) of claim(s) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Mayeda et al, who teach the use of a substrate clamp with a tapered interior edge for holding a wafer.

Art Unit: 1763

***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km

*Primary Examiner  
AU 1763  
J. Hassanzadeh*